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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/092,115 06/05/98 HANRATTY

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EXAMINER

MMC2/0417

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ART UNIT

PAPER NUMBER

2823

DATE MAILED:

04/17/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/092,115

Applicant(s)
Hanratty et al.

Examiner
Scott J. Hawranek

Group Art Unit
2823



☒ Responsive to communication(s) filed on Jan 24, 2000

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-4 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-4 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1 is provisionally rejected under the judicially created doctrine of double patenting over claims 1-5 of copending Application No. 08/678,847. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: reducing photoresist layer then patterning layer under photoresist.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

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Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Auda et al (US Pat No. 5,139,904) in view of Wolf et al..

Auda et al. in figs. 1-5 and related discloses a method of patterning a first layer of a resist on a layer of gate material (fig. 2a, 17a) to define gate locations; reducing the line width of said patterned layer of resist (fig. 2c); using reduced line width patterned resist as an etch mask to form gates from said layer of a gate material (fig. 2d). The purpose for using reduced line width patterned resist for gates is to, "control the polysilicon line widths smaller than conventional UV photolithography equipment can achieve on standard photoresist layers. (col. 1, 15-20).

Auda et al. does not explicitly disclose forming a layer of dielectric on gates patterning a second layer of photoresist to define interconnects without a reduction in line width to form interconnects over gates.

However, this process is notoriously obvious as shown by Wolf et al.(pp 280). Wherein the interconnects are formed by forming a layer of dielectric on gates patterning a second layer of photoresist to define interconnects without a reduction in line width to form interconnects over gates. Wolf shows that this is the conventional way to make contact the "outside" world. In

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addition, it is held, absent evidence to the contrary, that Auda et al. would inherently have these aspects as part of the invention in order to obtain a working device. Wherein in a working device contact to the “outside” world is required. See In re Best, 195 USPQ 428 (CCPA 1977) and In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

It would have been obvious to one of ordinary skill in the art to use the conventional process of interconnect formation as shown by Wolf and inherent in Auda et al. in order to obtain connection to the “outside” world with out the excess expense or need for minimization of line width in the interconnect, thereby using mixed overall line widths.

The use of reduced photoresist and non reduced photoresist has been shown to be obvious as applied above. Therefore, the choice of using a mixed strategy would merely be optimization of the result effective variable (e.g., reducing the photoresist) and is obvious because it is a matter of determining optimum process condition by routine experimentation with a limited number of species. In re Jones, 162 USPQ 224 (CCPA 1955)(the selection of optimum ranges within prior art general conditions is obvious) and In re Boesch, 205 USPQ 215 (CCPA 1980)(discovery of optimum value of result effective variable in a known process is obvious).

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mishra et al.(US Pat No. 5,798,555) in view of Auda et al (US Pat No. 5,139,904) and Maniar et al.(US Pat No. 5,525,542).

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Mishra et al. teaches in figs. 1-17 and related text a method of forming a dummy gate structure with photo resists (fig. 2e, 48), reducing the width of dummy gate ; forming a dielectric layer over gate (fig. 2g, 66,64); removing dummy gate; a metal contact is deposited into region (fig. 2g, 68). Thereby, forming a T-Shaped gate electrode with a photo resists. It is held, absent evidence to the contrary, that T-shaped gate electrode is formed with a photoresist without a reduction as is conventional in the art. The T-Shaped gate electrode provides a better contact with more surface area providing an improved contact as demonstrated by Mishra et al.

Mishra et al. lacks anticipation for using a reduced photoresist.

However, Auda et al., discloses supra, paragraph 4 above. In which the incorporation of using a reduced photoresist in order to obtain smaller geometries and better control of the line widths. (col. 1, 15-20).

It would have been obvious to one of ordinary skill in the art to have modified Mishra et al. with the teachings of Auda et al. in order to obtain a smaller gate geometries and have better control as taught by Auda et al.

Examiner takes official notice that the use of anti-reflective coatings over a reflective conductive layers is notoriously obvious and is convention in the art as shown by Maniar et al. In which Maniar et al. discloses the use of antireflective coatings to avoid reflected radiation back to portions of the photoresist which cause inconsistencies in patterns of the imaged photoresist.

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Therefore, it would have been obvious to one of to have modified Auda et al. and Mishra et al. with Maniar et al. in order to obtain a more accurate profile with the use of antireflective coating as taught by Maniar et al.

The use of reduced photoresist and non reduced photoresist has been shown to be obvious as applied above. Therefore, the choice of using a mixed strategy would merely be optimization of the result effective variable (e.g., reducing the photoresist) and is obvious because it is a matter of determining optimum process condition by routine experimentation with a limited number of species. In re Jones, 162 USPQ 224 (CCPA 1955)(the selection of optimum ranges within prior art general conditions is obvious) and In re Boesch, 205 USPQ 215 (CCPA 1980)(discovery of optimum value of result effective variable in a known process is obvious).

Response to Arguments

6. Applicant's arguments filed 1/24/200 have been fully considered but they are not persuasive. Refer to rejections, supra.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5

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USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, motivation for the rejection is found in rejection, *supra*.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott J. Hawranek whose telephone number is (703) 305-0070. The examiner can normally be reached on Monday thru Friday from 8:30 to 6:00 P.M. .